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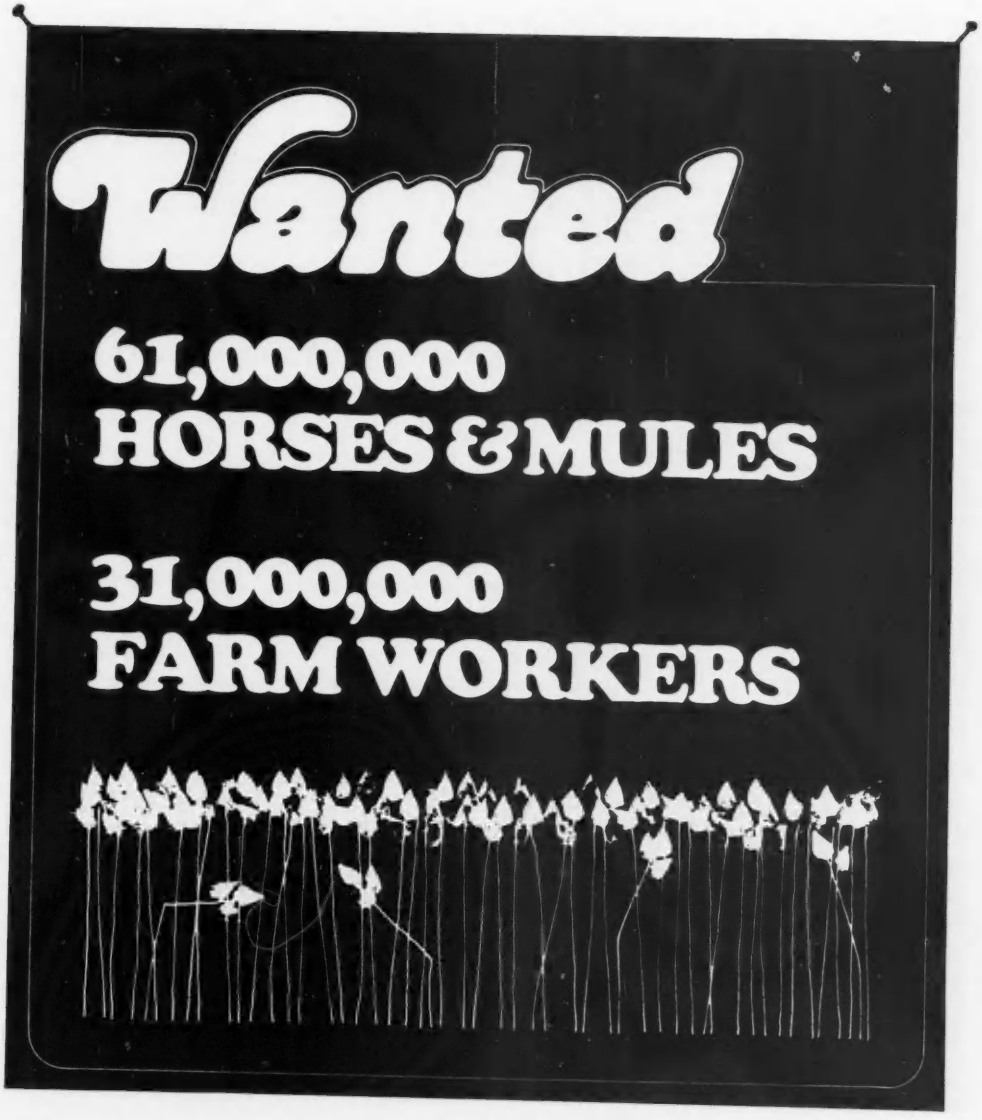

Can 1918 Farming Feed 1975 People?

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Outlook

The outlook for record grain crop and strong export markets brightens the economic picture as the summer wanes.

While economists await further crop reports to clarify the thus far happy outlook for American farmers, growing conditions continue to be generally favorable . . . the only exception is the Midwest, where some moisture is needed. Bumper crops are still expected there, however.

If the record grain harvest comes in, it should strengthen other sectors of agricultural economy, particularly livestock production. Even with large exports, enough grain is expected so that feed prices could decline . . . with lower feed prices, larger placements of cattle on feed can be expected, but livestock producers are waiting to see grain price developments. Increases in pork production may materialize in the second half of 1976.

Meanwhile, beef prices should rise in the third quarter due to livestock adjustments last year when higher feed prices led to a reduction of cattle on feed and a heavy slaughter in the fall.

The pork outlook is gloomy. Pork production may drop to the lowest level in 9 years in 1975 . . . prices will continue upward . . . per capita pork consumption may reach its lowest level in 40 years.

In the fall, a stronger movement of slaughter of cattle directly off pasture could result in price drops.

Broiler prices remain strong. If beef prices increase, so will broiler prices.

Some runups are expected in fruit and vegetable prices . . . economists say the rises are more than seasonal.

Farm income prospects look much better this year, with the promising livestock and crop forecasts . . . net income is still expected in the low to mid-20's.

No problems are expected for input prices . . . supplies are still good at higher prices.

Stewpot to Supermarket

Every day is feast day for American food shoppers. They can find 5,000 different products on display in the average supermarket. And much of the work of preparing this food, including the cooking, is often done before it reaches the checkout counter.

This is quite a contrast to the scene of two centuries ago when typical American families ate out of stewpots. They supplied most of what went into the pots by their own efforts —by farming, fishing and hunting, and foraging in the wild.

The hard fact that our ancestral diet was usually drab and sometimes skimpy runs counter to cherished romantic notions about the bounty of our past. When we think of early American meals, visions of the sumptuous, beautifully appointed tables of Williamsburg or Mount Vernon often come to mind.

The vision is valid for the few. Wealthy plantation families in the South enjoyed an opulent diet. They had skilled slave cooks who prepared a wide variety of foods, both domestic and foreign, in well-equipped kitchens in buildings separate from the family house.

The small middle class of merchants, craftsmen, and clergy in the principal seaboard cities of New York, Philadelphia, Boston, Baltimore, and Charleston also ate well. Many also kept slaves or servants to do kitchen work.

City gardeners. But the southern planters and the urban middle class made up only a small fraction of the population. Even in cities, those in the lower economic classes provided most of their foods from gardens

School lunch programs help today's kids obtain a varied, balanced diet.

and their own domestic animals. What food they purchased came from peddlers or from farm markets. Food stores were unknown.

In rural areas, where nine-tenths of the population lived, people depended on their own resources for their food. Their diet varied with the seasons, with their success in raising crops and livestock, and with the availability of food in the wild. At best, the quantity was abundant, but at any given meal or season, variety was almost totally lacking.

Cooking was done entirely at an open hearth. The first American cookstove was cast in 1765, but only the very rich could buy one. Most families could afford only one large iron cooking pot.

Cooking was drudgery. Most housewives had many chores besides cooking: The fire had to be built and tended, bread baked, cows milked, butter churned, vegetables picked and cleaned, animals dressed and cut up, and so on. There was no time for preparing fancy or complicated dishes. Nearly everything for a meal went into the one large kettle and was cooked together.

Much of the equipment that we are accustomed to was lacking. In many homes there were few chairs; children stood at meals. There were usually just enough wooden bowls and spoons for the family, and guests were expected to bring their own. A fairly prosperous family might have a few pieces of pewter ware.

Breakfast was commonly a bowl of porridge or cornmeal mush with cider or beer. Only the more well-to-do could afford tea or coffee.

From crack of dawn. The midday dinner was a stew that started cooking at dawn. People helped themselves from the stewpot. Supper was generally the remainder of the stew, or a gruel made from the leftovers. Some families ate only two meals—breakfast and a midafternoon dinner.

Bread was baked once a week if there was an oven. While the dough was being prepared, a fire was built in the oven and kept burning until the brick walls were thoroughly heated. Then the ashes were raked out, the loaves put in, and the door sealed. If there was no oven, some breadstuffs could be baked in pots or skillets on the hearth.

Tough and stringy. Most meat was tough. Hogs generally foraged, and the quality of the pork did not compare in tenderness or taste with the modern grain-fed product of the Corn Belt. Beef was stringy and had to be pounded, mashed, or chopped to be edible. Even if the limited cooking facilities had not required it, stewing was the only method for making it edible. Venison and other game were available in many areas as well as fowl, both domestic and wild. Fish and seafood were widely used along the coasts and bays.

Seasoning was done primarily with herbs, mostly wild. The most common sweetener was molasses, but in New England maple syrup and sugar were popular. Some cane sugar was imported in large cone-shaped blocks from which chunks were broken off and pounded into a powder.

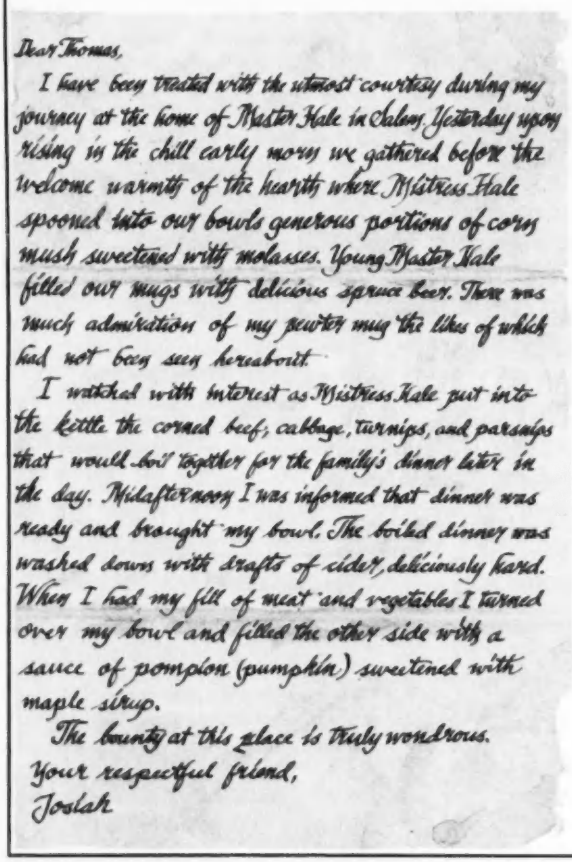
Food pooling. Feasts on holidays and other special occasions provided the main relief to the monotony of the diet. At harvest time, sugaring-off time, Thanksgiving, or for funerals and weddings, people pooled their food and labor to provide greater variety.

In contrast to colonial times, not only do today's consumers have a much larger variety of foods to select from, but a much higher pro-

Consumer aid: nutrition research provides information for food shoppers.

Bounty of the Past

Inn Patrons Ate Reasonably Well



Dear Thomas,

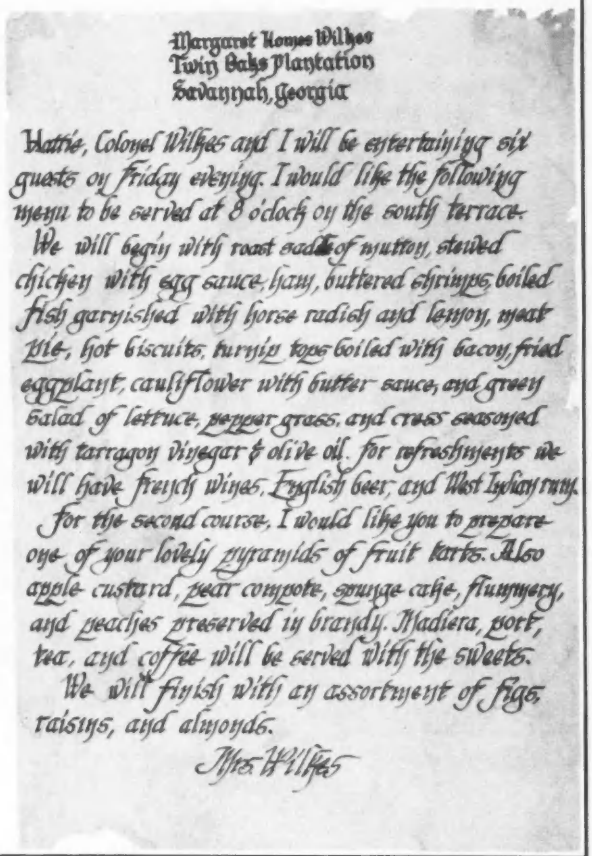
I have been treated with the utmost courtesy during my journey at the home of Master Hale in Salem. Yesterday upon rising in the chill early morn we gathered before the welcome warmth of the hearth where Mistress Hale spooned into our bowls generous portions of corn mush sweetened with molasses. Young Master Hale filled our mugs with delicious spruce beer. There was much admiration of my pewter mug the likes of which had not been seen hereabouts.

I watched with interest as Mistress Hale put into the kettle the corned beef, cabbage, turnips, and parsnips that would boil together for the family's dinner later in the day. Midafternoon I was informed that dinner was ready and brought my bowl. The boiled dinner was washed down with drafts of cider, deliciously hard. When I had my fill of meat and vegetables I turned over my bowl and filled the other side with a sauce of pompion (pumpkin) sweetened with maple sirup.

The bounty at this place is truly wondrous.

Your respectful friend,
Josiah

Southern Rich Had Everyday Feasts



Margaret Howes Wilkes
Twin Oaks Plantation
Savannah, Georgia

Hattie, Colonel Wilkes and I will be entertaining six guests on Friday evening. I would like the following menu to be served at 8 o'clock on the south terrace.

We will begin with roast saddle of mutton, stewed chicken with egg sauce, ham, buttered shrimps, boiled fish garnished with horse radish and lemon, meat pie, hot biscuits, turnip tops boiled with bacon, fried eggplant, cauliflower with butter sauce, and gravy. Salad of lettuce, pepper grass, and cress seasoned with tarragon vinegar & olive oil. For refreshments we will have French wines, English beer, and West Indian rum.

For the second course, I would like you to prepare one of your lovely pyramids of fruit tarts. Also apple custard, pear compote, sponge cake, flummery, and peaches preserved in brandy. Madiera, port, tea, and coffee will be served with the sweets.

We will finish with an assortment of figs, raisins, and almonds.

Mrs. H. Wilkes

portion can afford to eat well. When the country was born, only a handful of families were even moderately well-to-do. By 1973 only 11 percent fell below poverty guidelines, though this probably has increased some because of the recession.

Progress has been especially rapid in the last couple of decades. As recently as 1959, 22 percent of all Americans were in the poverty class.

Uncle Sam as provider. Even for that part of the population still in poverty, the way has been eased by public assistance programs instituted in the 1960's. The USDA food programs alone are assisting nearly 20 million persons to obtain a more adequate diet through food stamps, and 10 million receive school lunches, either free or at a reduced price. While food stamps do not make it possible for low-income people to eat luxury food, they can eat much better than the poor in the "good old days."

The changes over the two centuries add up to a decided increase in consumer demands on the American farmer. A vastly larger population—210 million plus vs. 3½ million—has much more money to spend, is eating a wider variety of food, and is producing less for themselves.

Cutting calories. At the same time, there has been a shift in the kinds of diets people need to keep them in good health. As machines replaced human muscle in factories and on farms, the number of calories needed by Americans has dropped sharply.

Partly because of this, there has been a decided swing away from foods like potatoes and grains to meat and other more concentrated foods. Consequently, the average American's diet requires more farm

resources than the diets of earlier times.

Although consumers are generally satisfied with the food they buy and the institutions that produce, process, and distribute it, they share some concerns that seldom bothered their colonial ancestors.

Food prices. First and foremost is food prices. From the end of the Korean War until 1972, substantial supplies kept farm prices at a fairly low level. Retail food prices increased a bit more slowly than prices of other goods and services and much more slowly than income. This permitted many Americans to increase spending for automobiles, television sets, recreation, and education. So it is small wonder that the sharp food price rises of 1973 and 1974 sent shock waves throughout the country.

Point of no return. Though the food price increase has slowed, it is clear that the price levels of the 1950's and 1960's are not going to come back. Agriculture uses substantial amounts of energy, both directly to run farm equipment and indirectly in the manufacture of such inputs as fertilizer which have helped raise the productivity of American farming to such impressive levels. Energy prices will continue to increase and with them the costs of farming. This will have to be reflected in farm product price if the output we need to feed an increasing population is to be forthcoming.

Because of the recession, income is rising more slowly and consumers are spending a slightly higher proportion for food than in the last few years. When the economy picks up, income is again likely to rise faster than food prices and expenditures. Many on low, fixed incomes will continue to be pinched by food costs, although food stamps will help.

Additives. Another major concern is the quality and safety of the food supply. The problem centers on additives and other components of foods. It is similar to the concern of 70 years ago about the unsanitary conditions in slaughter houses and processing plants which led to passage of the Pure Food and Drug Act of 1906. However, the relation between specific components of the food supply and health are largely unknown or speculative.

Another concern is with the costs associated with increasing the variety of foods available. Many believe that eventually a trade-off between variety and costs must be faced.

Concern over nutrients. Another common worry is about the nutritional content of the food supply. The virtues of particular diets for health or other reasons are being vigorously argued. Proposals are being pushed to drastically change the nutritional content of the American diet by measures designed to reduce consumption of sugar, animal fats, and additives.

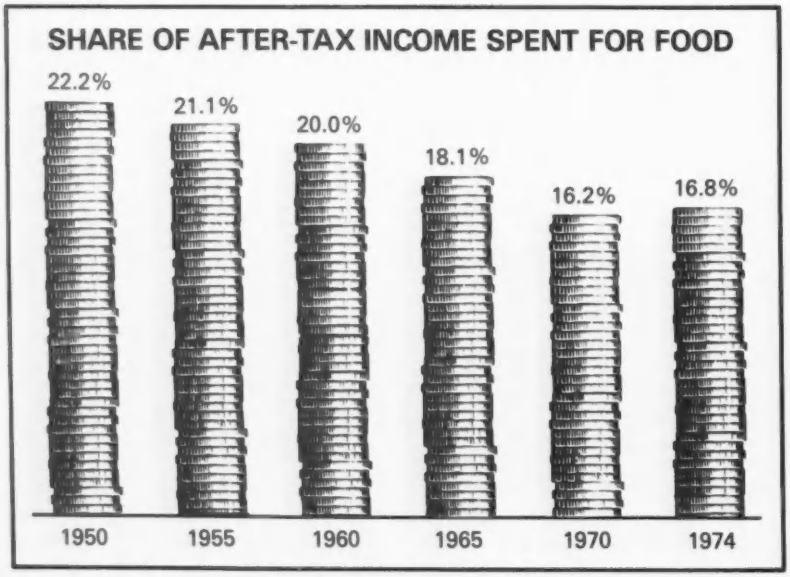
Dissatisfaction also is expressed with the information consumers have available on which to base decisions about buying and preparing food. As a result, open-dating of perishable food is now quite general and unit pricing common in supermarkets. Nutritional labeling of food products is already underway and will be required in the near future under regulations of the Food and Drug Administration for any food for which nutritional claims are made.

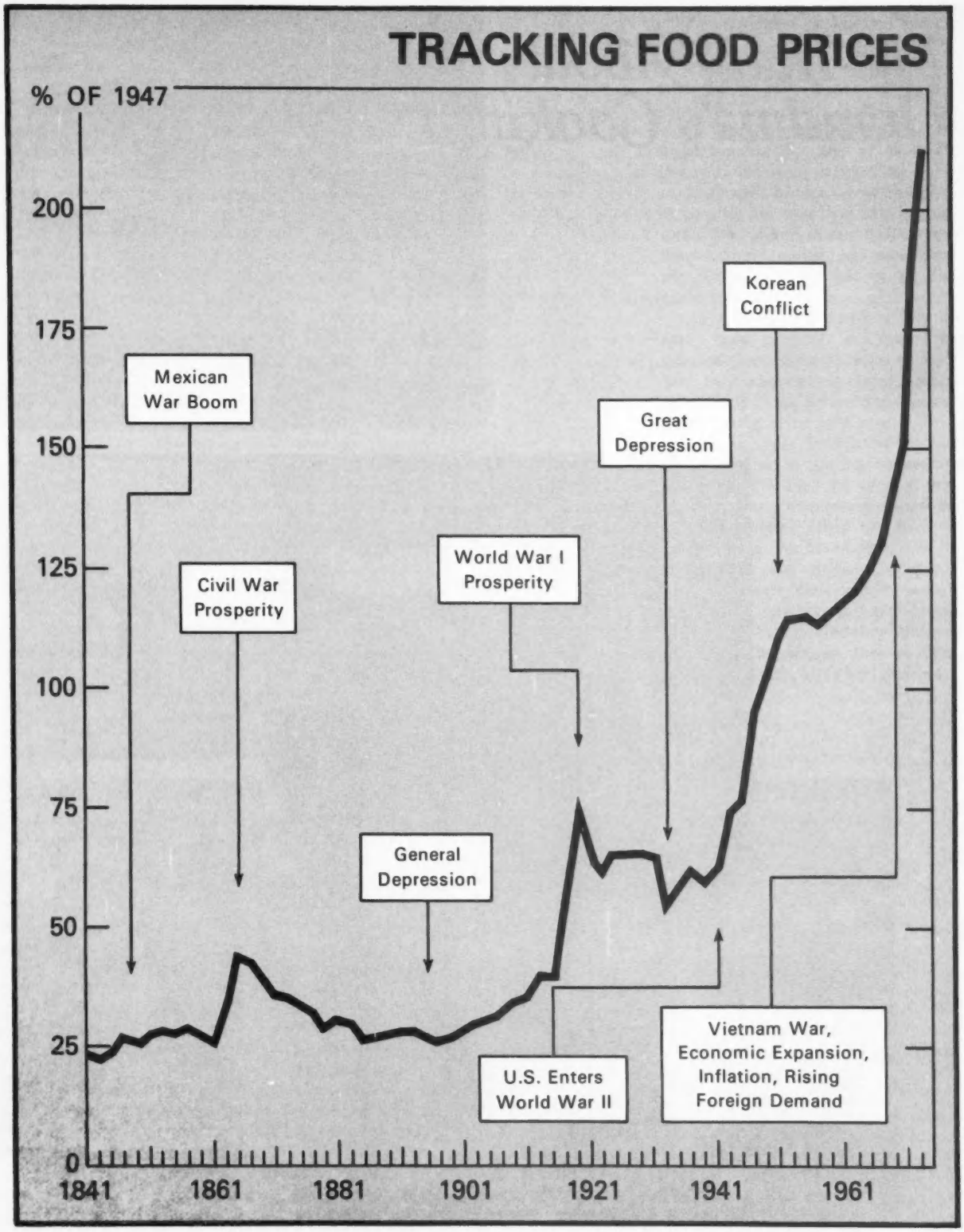
Advertising of food products has been considerably modified by regulatory action of the Federal Trade Commission. Several proposals for further regulation are being reviewed.

Capacity to produce. Another concern sometimes expressed by consumers—but one for which there is little basis—is worry over the supply of food. American farms have the potential capacity to vastly increase output of major agricultural products. Given favorable product prices, no restrictions on land use, more general use of technology, and adequate supplies of inputs, farmers by 1985 could produce 50 percent more feed grains than in 1972, 44 percent more beef cows, 30 percent more cotton, 4 times as many peanuts, and twice as much rice. The increases actually achieved will depend on the incentives farmers have.

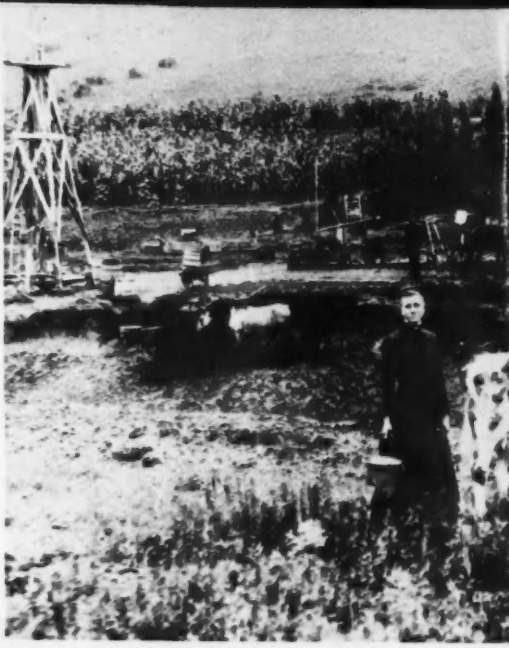
But in any case, the U.S. in the foreseeable future will remain—as it has ben for 200 years—a land of plentiful food.

[Based on special material by Alden C. Manchester and Corrine LeBovit, National Economic Analysis Division.]




TRACKING FOOD PRICES
% OF 1947
200
175
150
125
100
75
50
25
0
1841
1861
1881
1901
1921
1941
1961
Mexican War Boom
Civil War Prosperity
General Depression
World War I Prosperity
Great Depression
Korean Conflict
U.S. Enters World War II
Vietnam War, Economic Expansion, Inflation, Rising Foreign Demand

The Truth About Grandma's Cooking



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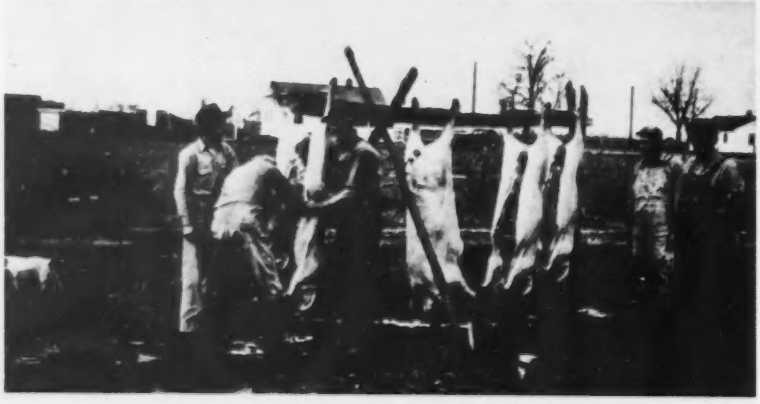


6.

If you didn't notice the monotony of the oldtime menu, Grandma may have been an even better cook than you thought (photo 5).

The rich ate well in bygone days, supplementing the best of domestic fare with the cream of imported wines and delicacies. But for the vast majority of people, the rural and urban poor, meals were lacking in variety and often tasteless, and eating was something you did because you had to, not because you enjoyed it.

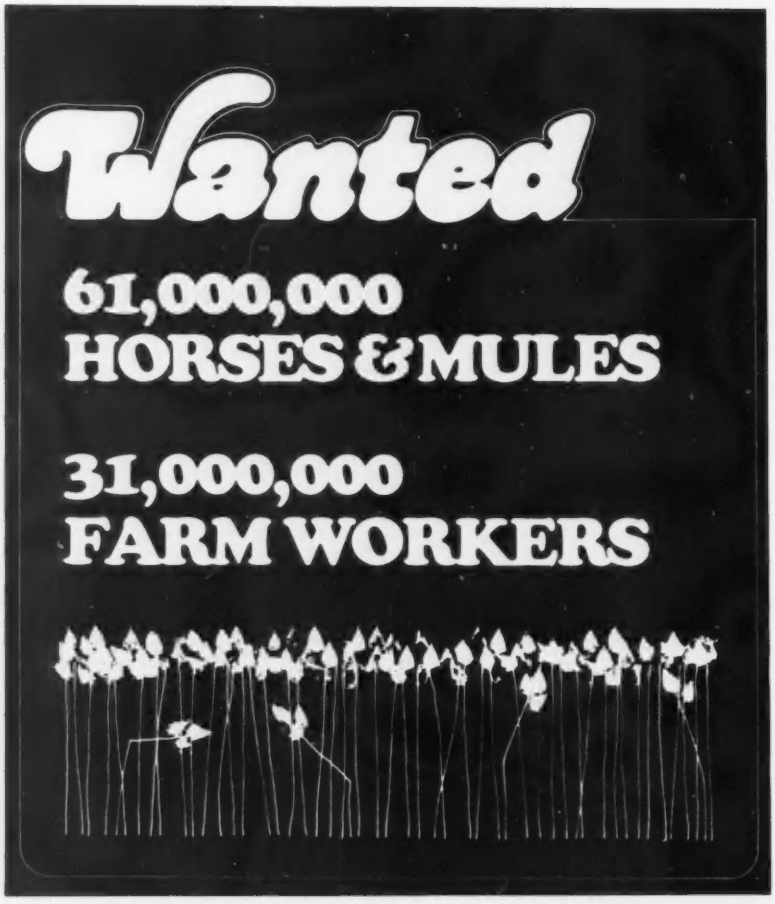
Our rural ancestors had to rely on their own cunning to feed their families. They supplied most of their food by gardening and raising domestic animals (1, 6), fishing and hunting, and foraging in the wild.

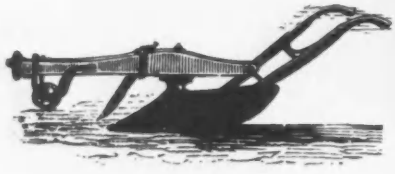
Even if there had been enough variety of food to allow it, housewives wouldn't have had the time to prepare fancy or complicated dishes. Besides cooking (2), they had to build and tend the fire, bake bread, milk the cows, pick and prepare vegetables (3, 5, 7), churn the butter, as well as an endless number of other chores. Sometimes they pooled their efforts in a community kitchen (4)—an equal amount of work, but a lot more fun.

7.

5.

Can 1918 Farming Feed 1975 People?





It's time for annual plowing, and 61 million horses and mules are being hitched up to break the earth.

Gas-guzzling tractors with their polluting exhausts sit idly by, as 31 million farm workers busily march to the fields.

To some critics of today's farming practices, this whimsical scene is the solution to many problems that have plagued America recently.

Energy is saved, pollution is lessened, and a great new job market is created, thus reducing urban problems related to unemployment.

Some critics have even predicted a return to nonmechanized farming, a return to the "good old days."

Drawbacks. Yet, knowledgeable agriculturists have found some serious —if not insurmountable—drawbacks to such an anti-technological revolution:

- Where are the 61 million horses

and mules that would be needed to sustain present agricultural production? Only 3 million exist in the U.S. today.

• While 31 million farm workers would be required, only 4 million now work on farms. The 27 million remaining jobs would have to be filled from the industrial labor force.

Several other major problems that pertain to economics could conceivably be solved, though, if the American consumer were willing to pay a great deal more for food.

Biological impasse. In arriving at the biological impasse of the shortage of horses, and the staggering manpower need, an ERS researcher compared 1918 farming with 1974 production.

The 1967 index was the yardstick. The 1918 crop had an index of 48—that is, 48 percent as large as the 1967 crop—compared with 109 in 1974. Thus 1974 production was about 2¼ times greater.

As a peak year of nonmechanized farming, 1918 is an ideal choice in the comparison.

A straight projection of 1918 resources to meet 1974 production can be made by simply multiplying the 26.7 million mules and horses and the 13½ million farm workers carrying on farming in 1918 by the 2.27 times larger output in 1974.

Millions needed. Thus, to achieve 1974 production levels while using 1918 nonmechanized and nonpetrochemical technology (commercial fertilizers and modern pesticides), about 61 million horses and mules, and 30 or 31 million farm workers would be needed.

This difference is, of course, only a guideline projection. Obviously, nonmechanical and nonchemical technology improvements that have evolved since 1918, such as hybrid seeds, would lessen the manpower and horsepower requirements by allowing greater yields for less work.

But agricultural economists quickly emphasize that the point of the projection is valid: a complete abandonment of mechanized technology is a biologically impossible and sociologically impractical idea.

Examining the horse and mule problem first, it is biologically impossible to breed 61 million animals from the 3 million on hand before 1992 or 1993, assuming optimum rates of reproduction.

Horse feed. The problem is compounded by the need to feed this new proliferation of work animals: some 180 million acres of prime farmland must be used to produce feed. Since only 60 million acres were "retired" during the peak of the land retirement programs—much of which is now back in use—this acreage is not readily available. Furthermore, there would be questions over feeding so many horses in this country while people abroad are starving.

While these obstacles are being dealt with, population continues to grow along with the demand for food. So, by 1992 when more horses and mules would be available, a much larger crop may be needed.

Although there is no shortage of people to work on farms, a movement of 26 million workers from city to farm would provide mind-boggling problems.

New job market. With 8½ million people unemployed in June 1975, the new job market would be a blessing to many families. But the remaining 18 million farm workers needed would have to come from the industrial labor force, thus creating masive labor shortages.

There are, moreover, some indications that few such laborers would leave the cities in the first place. In the Northeast, farmers have struggled with severe labor problems for years, even importing foreign laborers. The available jobs are for "stoop" work, which has little appeal to most laborers.

Low pay. Perhaps some of the unpopularity of stoop jobs may stem from low pay. Factory wages are at least double those paid to farm workers. In fact, nonfarm workers on unemployment insurance earn more than many farm workers if the value of food stamps is included. Of course this is somewhat offset by the fact that some farm workers also receive food stamps and, in some cases, free housing.

But, to lure enough laborers out of the cities to fill the 26 or 27 million prospective farm jobs for nonmechanized farming, the agricultural industry must provide far more than free housing and food stamps. Great wage increases, perhaps to $6 or $7 per hour, would be needed.

The impact of such wage hikes would be painful to the American consumer, who would pay much greater prices to absorb the wage increases.

Labor costs. For example, nonmechanized farming would require 96 hours of labor per acre for a field of Maine potatoes, with a 180-barrel (165 lb/bbl) yield. Labor costs, alone, would be $3.20 a barrel. In April 1975, a barrel of potatoes sold at the farm for only $2.25 to $2.50.

The problems relating to manpower and horsepower for demechanized farming, then, appear to be like a chain reaction, with each problem creating or compounding another.

Turning to a related area, the use of fertilizers and pesticides by American farmers has been criticized as being inefficient, energy-wasting, and environmentally harmful.

According to some critics, high-yield crops can be produced using organic fertilizers, particularly "green manure" from legumes, including soybeans.

Legumes make nitrogen. One proposal is to turn under legumes to produce 140 pounds of nitrogen per acre. The drawback is that only 70 pounds of nitrogen is released the first year, with 35 pounds released during each of the next 2 years. To use green manure, farmers would have to introduce a noncash crop legume into their rotation. Few farmers could afford this.

Critics can, however, point to a tremendous upsurge in fertilizer use. Total fertilizer use has more than doubled during the past two decades, perhaps because it was the cheapest and most productive input that farmers could buy.

Since 1970, about 94 percent of all corn acreage has been fertilized. In 1974, fertilizers were applied to 79 percent of cotton acreage, 30 percent of soybean acreage, and 66 percent of all wheat acreage.

Fertilizer waste. Critics charge that much of this fertilizer application is of very questionable efficiency, since yields do not increase proportionately with fertilizer increases.

Some opponents even contend that "slash and burn" farming is more energy efficient. Such contentions may be shortsighted, however, since the primitive slash-and-burn system involves clearing land, raising a few crops until soil is depleted, then moving to new land, leaving behind poor acreage. While, perhaps, it's energy efficient on paper, the method squanders equally vital resources: soil and forests.

American farmers constantly replenish the soil by incorporating fertilizers. U.S. crops must feed much of the world, instead of the people of a nearby village.

Manure substitute. Many conservationists have suggested that animal manure may be substituted for inorganic fertilizer. Yet, beef cow manure, as fertilizer, is worth less than $5 a ton, with a nutrient yield of 22 pounds per ton. If the manure is hauled very far, hauling costs may exceed the value of the fertilizer.

Agriculturists aren't ready to dismiss the extensive use of organic fertilizer yet, however. In fact, some research in this area appears to have promising potential.

Researchers at Washington University in St. Louis, Mo., are studying 16 matched pairs of farms, half using organic fertilizer, and half using inorganic fertilizer. Preliminary results appear promising.

Since many pesticides are petroleum based, considerable energy is used in production ,as well as application. And, unhappily, some pesticides have been found potentially dangerous, then removed from the market.

Poor alternatives. Yet the alternatives to using pesticides are not attractive, either.

Critics Speak

- American agriculture is overmechanized, so that it is wasteful and no longer provides jobs that could accommodate the unemployed.
- Larger expenditures of energy do not proportionately increase production, so that massive doses of fertilizer, for example, are wasteful.
- Less developed countries that use the "slash-and-burn" method of agriculture are much more efficient in using energy and avoiding waste of resources.
- Food energy derived from livestock products is much less than when humans directly consume the plants and grains fed to livestock.
- High-yielding hybrid corn has such low protein levels that it must be reinforced by fish protein before being fed to cattle. The fish come largely from off the coast of South America, where many people are severely undernourished for lack of protein. Thus Americans are feeding this vital protein to cattle at the expense of South American children.
- To produce 1 calorie of food, 5 calories of energy must be invested in the American agricultural system.
- The large farm operations systematically avoid diversity and, in turn, lose natural controls to enrich the soil and deter pests. Therefore, great doses of fertilizer and pesticides are required, using much energy.
- Population growth should lower the value of raw materials, thus making greater use of manpower more attractive to farmers.
- Technology weakens crops and makes them more susceptible to drought and disease.
- U.S. agriculture misallocates resources. Cow manure is more efficiently used as a fuel than as a nitrogen-rich fertilizer.

Without machines, 31 million farm workers are needed.

Plowing by horse burns hay, not gas. But can "Old Dobbin" do the job?

In order for a farmer to forego herbicides, he must tractor-till or hand weed his fields to remove weeds that choke crops. Critics must then decide whether to side with energy-guzzling tractors, or energy-using pesticides. Hand labor for weeding is not available.

Some insecticide use may be curtailed by eliminating some preventive sprays, and by more reliance on combating outbreaks.

Yet, farmers who raise quality dessert fruits may be most reluctant to risk an outbreak that would change a valuable crop of dessert apples into culls for cider.

Still another possible area of energy conservation may be in artificial crop drying. Currently, it takes more energy to dry corn than to produce it. Yet, the alternative of producing ear corn and then drying it naturally entails some problems.

Field losses. If corn is allowed to dry longer in the field until it is safe to bring into the crib, field losses of 5 percent or more aren't unusual. Also, losses due to rodents and birds getting into cribs and eating and contaminating it with fecal material are significant.

Research is now underway to reduce fuel needs for drying shelled corn by using more efficient heat pumps, and to replace propane with solar heat.

Perhaps the most immediate improvement in energy conservation in farming may come from a natural byproduct of the energy shortage: higher fuel prices. With higher prices, farmers have considerable financial incentive to reduce fuel consumption as much as sound farming practices allow.

The economic impact of high fuel prices should also spur a general refinement of present technology to require less energy to achieve maximum production.

Packing and handling. Yet, a careful examination of the agricultural system shows that the American farmer has little to do with the greatest energy consumer of the food industry: packing and handling.

In this area, ERS researchers and agricultural critics find a common ground of agreement. A great deal of energy is being consumed. Many of these energy-consuming practices are conveniences demanded by the American consumer. For example:

- Frozen and freeze-dried foods require much more energy than canned or fresh foods.
- Items are often packaged into single servings for consumer convenience.
- Legislation that would ban throwaway bottles, cartons and other such wasteful packaging invariably dies for lack of popular support.

A mountain of cow manure can be used as either fuel or fertilizer.

Innocent farmers. The effects of such energy uses are often blamed on the farmer, who is largely innocent.

Some critics erroneously contend that it take 5 calories of energy input to product 1 calorie of food value in U.S. agriculture.

In reality, the U.S. farmer produces about 3 calories of food for every calorie invested. Yet, by the time the food is packaged and it reaches the consumer, 5 calories are invested for each calorie of food value.

Although the American agricultural system can stand improvement, such theoretical panaceas as demechanized farming and a return to nonchemical techniques appear impractical, unless major obstacles are overcome.

Wrong villain. Perhaps even more pointedly, the search for energy-guzzling villains may be misdirected at the food and fiber industry, which uses only 10 percent of the American energy consumption. Most of that 10 percent is consumed at the packaging and handling stage, not the farming stage.

The days of the horse-drawn plow and a rural-based population may remain etched in the soul of America.

But it appears unlikely that the quiet, uncluttered lifestyle of 1918 can be resurrected in the lean and hungry world today.

[Based on "Can We De-Mechanize Agriculture?," speech by Earle E. Gavett, Natural Resource Economics Division, presented at Northeastern Agricultural Economic Council Meeting, Orono, Maine, June 23–25, 1975.]

Recent Publications

Single copies of the publications listed here are available free from The Farm Index, Economic Research Service, Rm. 1664–So., U.S. Department of Agriculture, Washington, D.C. 20250. However, publications indicated by (*) may be obtained only by writing to the experiment station or university. For addresses, see July and December issues of The Farm Index.

Low-Income Rural People in East Central Arkansas Face Roadblocks to Jobs. Richard N. Davis, Chico State University, Chico, Calif.; Bernal L. Green, Economic Development Division, stationed at the University of Arkansas; and J. Martin Redfern, University of Arkansas. AER–290.

The second in a series of six studies, this publication points out that low-income rural laborers face many roadblocks to jobs. The area surveyed was five predominantly rural counties in Arkansas.

Indices of Agricultural Production for the Far East and Oceania, Average 1961-65 and Annual 1965-74. Economic Research Service. Statis. Bul. 545.

A series of tables shows the agricultural production in the Far East and Oceania for the past 14 years. Data are also given by countries.

Cropland for Today and Tomorrow. H. Thomas Frey and Robert C. Otte, Natural Resource Economics Division. AER–291.

Existing and potential cropland are discussed within a regional context in this report. It summarizes recent changes in cropland use and evaluates the potential of primarily pasture and forest lands for crop production. Several factors which will likely retard development of new land are also pointed out.

The Small Watershed Program and Its Role in Community Development. Otto Thiemann, Natural Resource Economics Division. AER–288.

Community leaders in a study of eight watersheds ranked education ahead of health, roads, and streets, and listed erosion and flood control as the most valuable public service categories of community development. Under the water resource category, they rated water channel development first in importance, and land treatment second.

The Revival of Population Growth in Nonmetropolitan America. Calvin L. Beale, Economic Development Division. ERS–605.

In recent years, population has been growing faster in nonmetro than in metro counties. This study, based on 1970–73 data, points out the main reasons for this reversal in growth trends: decentralization of manufacturing and other industry; increased settlement of retired people; expansion of State colleges; more recreation activity; apparent higher birthrate in nonmetro areas; and declining appeal of city life for many people.

Agricultural Development in Brazil: A Case Study of Sao Paulo. Edmond Missiaen and Samuel O. Ruff, Foreign Demand and Competition Division. FAER-109.

Sao Paulo, which accounts for 20 percent of Brazil's farm output, is singled out in this report on Brazil's agricultural progress. On an upward trend since 1950, this State leads the country in crop yields and labor productivity.

Measuring the Green Revolution: The Impact of Research on Wheat and Rice Production. Dana G. Dalrymple, Foreign Development Division. FAER–106.

This report discusses how to measure the effects of the international research program on crop production in developing nations. It focuses on two crops—high-yielding varieties of wheat and rice.

A Bibliography on the Theory and Research on Household Expenditures. Hans P. Peterson and Rueben C. Buse, University of Wisconsin. AER–293.

Designed as an aid in researching household expenditures, this annotated bibliography contains features which permit quickly locating particular studies. Such features include a numbering system for the annotations which date a particular citation relative to other entries, a keyword index, a commodity index, an author index, an index of data sources, and a one-paragraph synopsis which is frequently cross referenced to other relevant articles in the bibliography.

Evaluation of Pesticide Supplies and Demand for 1974, 1975, and 1976. Theodore Eichers and Paul Andrilenas, National Economic Analysis Division, AER–300.

Although pesticide output fell short of expectations in 1974, additional production capacity should be on stream, and raw material shortages should have a smaller impact by 1976, according to this report. Past production difficulties and supply shortages are evaluated and demand estimates are given for each year.

Indices of Agricultural Production in Africa and the Near East. Foreign Demand and Competition Division. Statis. Bul. 544.

Through 57 tables, this publication gives data on agricultural production by commodity and country for Africa and the Near East. Data years are 1961–65 (average) and 1965–74 (annual).

Trends in Prices and Marketing Spreads for Beef and Pork. Donald B. Agnew, Commodity Economics Division. ERS–556.

Farm-retail marketing spreads for beef and pork during recent years are the target of this report. It relates changes in these spreads to market conditions and increasing costs for processing and distribution.

Economic Trends

Item	Unit or Base Period	1967	1974 Year	1974 May	1975 Mar.	1975 April	1975 May
Prices:							
Prices received by farmers	1967=100	—	184	174	165	170	178
Crops	1967=100	—	214	200	185	188	189
Livestock and products	1967=100	—	164	156	152	157	171
Prices paid, interest, taxes and wage rates	1967=100	—	169	165	179	182	183
Family living items	1967=100	—	161	160	173	173	175
Production items	1967=100	—	172	166	179	185	187
Ratio [1]	1967=100	—	109	105	92	93	97
Wholesale prices, all commodities	1967=100	—	160.1	155.0	170.4	172.1	173.2
Industrial commodities	1967=100	—	153.8	150.5	168.9	169.7	170.3
Farm products	1967=100	—	187.7	180.8	171.1	177.7	184.5
Processed foods and feeds	1967=100	—	170.9	158.9	177.3	179.4	179.0
Consumer price index, all items	1967=100	—	147.7	145.5	157.8	158.6	159.3
Food	1967=100	—	161.7	159.7	171.3	171.2	171.8
Farm Food Market Basket: [2]							
Retail cost	1967=100	—	161.9	—	168.5	168.2	169.1
Farm value	1967=100	—	177.6	—	171.4	175.7	182.2
Farm-retail spread	1967=100	—	152.0	—	166.7	163.5	160.8
Farmers' share of retail cost	Percent	—	43	—	39	46	42
Farm Income: [3]							
Volume of farm marketings	1967=100	—	111	93	93	91	91
Cash receipts from farm marketings	Million dollars	42,817	93,521	5,830	5,758	5,571	5,700
Crops	Million dollars	18,434	52,097	2,340	2,601	3,436	3,700
Livestock and products	Million dollars	24,383	41,424	3,490	3,157	2,135	2,000
Realized gross income [4]	Billion dollars	49.9	102.0	—	98.0	—	—
Farm production expenses [4]	Billion dollars	38.3	74.8	—	76.5	—	—
Realized net income [4]	Billion dollars	11.6	27.2	—	21.5	—	—
Agricultural Trade:							
Agricultural exports	Million dollars	—	21,994	1,797	1,911	1,758	1,496
Agricultural imports	Million dollars	—	10,247	890	749	762	688
Land Values:							
Average value per acre	Dollars	[6]168	[7]339	—	—	—	[8]354
Total value of farm real estate	Billion dollars	[6]181.9	[7]355	—	—	—	[8]370
Gross National Product: [4]	Billion dollars	793.9	1,397.4	—	1,416.6	—	—
Consumption	Billion dollars	492.1	876.7	—	913.2	—	—
Investment	Billion dollars	116.6	209.4	—	163.1	—	—
Government expenditures	Billion dollars	180.1	309.2	—	331.6	—	—
Net exports	Billion dollars	5.2	2.1	—	8.8	—	—
Income and Spending: [5]							
Personal income, annual rate	Billion dollars	629.3	1,150.5	1,135.2	1,195.7	1,203.1	1,214.3
Total retail sales, monthly rate	Million dollars	26,151	44,815	44,894	45,926	46,712	47,951
Retail sales of food group, monthly rate	Million dollars	5,759	9,980	9,795	10,805	10,598	10,831
Employment and Wages: [5]							
Total civilian employment	Millions	74.4	[9]85.9	[9]86.1	[9]83.8	[9]84.1	[9]84.4
Agricultural	Millions	3.8	[9]3.5	[9]3.5	[9]3.3	[9]3.2	[9]3.5
Rate of unemployment	Percent	3.8	5.6	4.6	8.7	8.9	9.2
Workweek in manufacturing	Hours	40.6	40.0	40.3	38.8	39.1	39.0
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	4.40	4.33	4.71	4.71	4.73
Industrial Production: [5]	1967=100	—	125	126	110	110	110
Manufacturers' Shipments and Inventories: [5]							
Total shipments, monthly rate	Million dollars	46,449	81,723	81,117	77,028	80,101	99,283
Total inventories, book value end of month	Million dollars	84,655	150,404	130,936	151,194	150,184	148,740
Total new orders, monthly rate	Million dollars	46,763	83,297	85,264	73,882	78,368	78,628

[1] Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates. [2] Average annual quantities of farm food products purchased by urban wage earner and clerical worker households (including those of single workers living alone) in 1959-61—estimated monthly. [3] Annual and quarterly data are on 50-State basis. [4] Annual rates seasonally adjusted 1st quarter. [5] Seasonally adjusted. [6] As of March 1, 1967. [7] As of Nov. 1, 1974. [8] As of March 1, 1975. Beginning January 1972 data not strictly comparable with prior data because of adjustment to 1970 Census.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Monthly Retail Trade Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale and Consumer Price Index).

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